

WHAT IS CLAIMED IS:

1. A driving apparatus for an electro-luminescence display panel comprising:
 - an electro-luminescent display panel having electro-luminescent light-emitting cells provided at crossings of gate lines and data lines;
 - a current generating circuit that generates a current corresponding to an externally supplied digital data;
 - a data driver that samples the current from the current generating circuit for each horizontal period to generate a data voltage corresponding to the current and applies the generated data voltage to the data lines; and
 - a timing controller that controls the data driver, applies the digital data to the current generating circuit, and generates a sampling control signal for controlling the data driver to apply the sampled signal to the data driver.

2. The driving apparatus according to claim 1, wherein the data driver includes:
 - first and second sampling circuits for generating the data voltage; and
 - an analog buffer for buffering the data voltage supplied from the first and second sampling circuits alternately for each horizontal period and applies the buffered data voltage to the data lines.

3. The driving apparatus according to claim 2, wherein each of the first and second sampling circuits includes:

a supply voltage line;

storage means for storing the data voltage corresponding to the current using a voltage from the supply voltage line, the storage means being driven with the sampling control signal; and

switching means for switching the data voltage stored in the storage means in response to the sampling control signal.

4. The driving apparatus according to claim 3, wherein the storage means includes a first switch, a sampling switch, and a capacitor which stores the data voltage,

wherein the first switch is connected between an output line of the current generating circuit and a control terminal of the sampling switch,

wherein the capacitor is connected between the control terminal of the sampling switch and the supply voltage line, and the control terminal is connected to a node positioned between the first switch and the capacitor, and

wherein the sampling switch connected between the first switch and the supply voltage line.

5. The driving apparatus according to claim 4, wherein the storage means further includes a second switch connected between the first switch and the sampling switch.

6. The driving apparatus according to claim 5, wherein the first and second switches are simultaneously turned on in the horizontal period in response to the sampling control signal and then sequentially turned off.

7. The driving apparatus according to claim 6, wherein the second switch is turned off prior to the first switch.

8. The driving apparatus according to claim 6, wherein the third switches of the first and second sampling circuits are driven alternately for each horizontal period in response to the sampling control signal.

9. The driving apparatus according to claim 5, wherein the switching means includes a third switch connected between the node and the analog buffer, the third switch switching a voltage stored in the capacitor into the analog buffer.

10. The driving apparatus according to claim 5, wherein a voltage from the supply voltage line flows into the current generating circuit through the sampling switch, the second switch, the first switch and the output line of the current converting circuit, and the capacitor stores the voltage between the control terminal and the input terminal of the sampling switch.

11. The driving apparatus according to claim 4, wherein the switching means includes a third switch connected between the node and the analog buffer, the third switch switching a voltage stored in the capacitor into the analog buffer.

12. The driving apparatus according to claim 11, wherein the first sampling circuit stores the data voltage into the capacitor during an horizontal period N , wherein N is an integer, while applying the data voltage stored in the capacitor to the analog buffer during an horizontal period $(N+1)$, and

the second sampling circuit stores the data voltage into the capacitor during the horizontal period $(N+1)$ while applying the data voltage stored in the capacitor to the analog buffer during the horizontal period N .

13. The driving apparatus according to claim 11, wherein the first sampling circuit and the second sampling circuit store the data voltage into their respective capacitors during alternate horizontal periods.

14. A method of driving an electro-luminescence display panel comprising the steps of:

preparing an electro-luminescent display panel having electro-luminescent light-emitting cells provided at crossings of gate lines and data lines;

generating a current corresponding to an externally provided digital data;

sampling the current during each horizontal period to generate and store the data voltage corresponding to the current;

applying the stored data voltage to the data lines; and

driving the light-emitting cells using the data voltage.

15. The method according to claim 14, wherein the step of generating and storing the data voltage includes:

generating the data voltage corresponding to the current using a voltage from a supply voltage line in response to a sampling control signal using first and second sampling circuits alternately for each horizontal period; and

storing the data voltage using first and second capacitors.

16. The method according to claim 15, wherein the step of applying the stored data voltage to the data lines includes:

alternately switching the data voltage stored in the first and second capacitors of the first and second sampling circuits into a buffer at each horizontal period; and

buffering the data voltage.

17. The method according to claim 16, further including a step of applying the buffered voltage to the data lines.

18. A method of fabricating an electro-luminescent display panel comprising the steps of:

providing an electro-luminescence display panel having electro-luminescent light-emitting cells arranged at crossings of gate lines and data lines;

providing a current generating circuit for generating a current corresponding to a digital data from the exterior; and

providing a data driver for sampling the current from the current generating circuit for each horizontal period, for generating the data voltage corresponding to the current, and for applying the data voltage to the data lines at one side of a substrate.

19. The method according to claim 18, wherein the step of providing the data driver includes:

- providing first and second sampling circuits for generating the data voltage; and
- providing an analog buffer for alternately buffering the data voltage supplied from the first and second sampling circuits at each horizontal period to apply the buffered data voltage to the data lines.

20. The method according to claim 19, wherein the step of providing the first and second sampling circuits includes:

- providing a supply voltage line;
- providing storage means driven with a sampling control signal for storing the data voltage corresponding to the current using a voltage from the supply voltage line; and
- providing switching means for switching the data voltage stored in the storage means into the analog buffer in response to the sampling control signal.

21. The method according to claim 20, wherein the step of providing the storage means includes:

providing a first switch connected between an output line of the current generating circuit and the supply voltage line;

providing a second switch connected between the first switch and the supply voltage line;

providing a sampling switch connected between the second switch and the supply voltage line; and

providing a capacitor connected between a control terminal of the sampling switch connected to a node positioned between the first and second switches and the supply voltage line for storing the data voltage.

22. The method according to claim 20, wherein the step of providing the switching means includes providing a third switch connected between the node and the analog buffer for switching a voltage stored in the capacitor into the analog buffer.